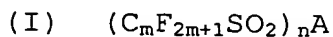


CLAIMS

1. A process for preparing functionalized polyorganosiloxane (POS) resins comprising units M:
- 5 (R₃SiO_{1/2}), Q: (SiO_{4/2}) and M': (Y_aR_{3-a}SiO_{1/2}) and optionally D: (R₂SiO_{2/2}) and/or D': (RYSiO_{2/2}) and T: (RSiO_{3/2}) and/or T': (YSiO_{3/2}),
- with, in these units:
- the radicals R, which may be identical or
 - 10 different, representing a C₁-C₁₀ alkyl or a C₈-C₁₂ aryl,
 - the radicals Y being identical or different and representing a functional group Y,
- by redistribution of POS resins using POSf bearing
- 15 functional units M' and/or D' and/or T', as defined above, in the presence of an acid catalyst, said process being characterized:
- ♦ in that at least one catalyst is used of formula (I) below:

20



in which:

- Δ m is an integer greater than or equal to
- 25 1;
- Δ n is an integer equal to 1 or 2 and A represents OH, NH₂, NH or CH₂ with:

(i) $n = 1$ and $A = OH$ or

(ii) $n = 1$ and $A = NH_2$ or NHR with R

being a radical of SO_2-Z type with Z

being a group other than C_mF_{2m+1}

5

(iii) $n = 2$ and $A = NH$;

- ◆ and in that this catalyst is in the presence of a nonbasic inert filler.

2. The process as claimed in claim 1, characterized in that the nonbasic inert filler is
10 chosen from the group of products comprising: carbon black, a diatomaceous earth and an acidic or neutral oxide, and mixtures thereof.

3. The process as claimed in claim 2, characterized in that the acidic or neutral oxide is
15 chosen from the group comprising: Al_2O_3 , Na_2O , TiO_2 , MgO , silica and zeolite, and mixtures thereof.

4. The process as claimed in claim 1, characterized in that Y is chosen from the group comprising:

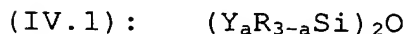
20

- hydrogen
- an alkenyl
- an alkynyl
- an aryl (preferably a phenyl)
- an (alkyl)epoxy
- 25 • an ether or a polyether
- a carboxylic acid
- an amide

- an amine
- a halide
- an alcohol
- a thiol or any other sulfur derivative.

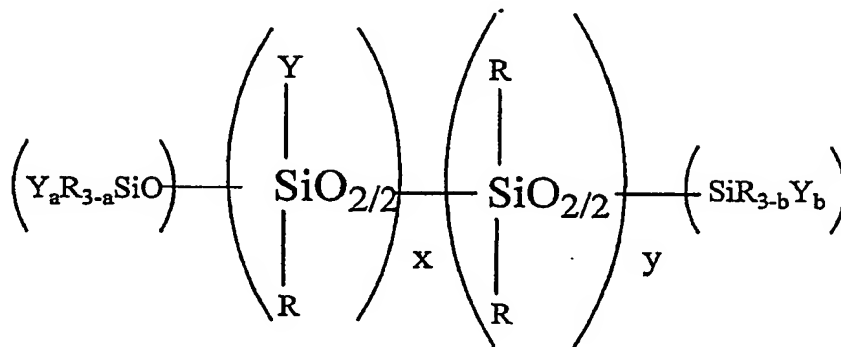
5 5. The process as claimed in any one of
claims 1 to 4, characterized in that the POSfs bearing
functional units M' and/or D' and/or T', which are
useful for the redistribution, are those of formula
(IV.1), (IV.2) or (IV.3) below:

10



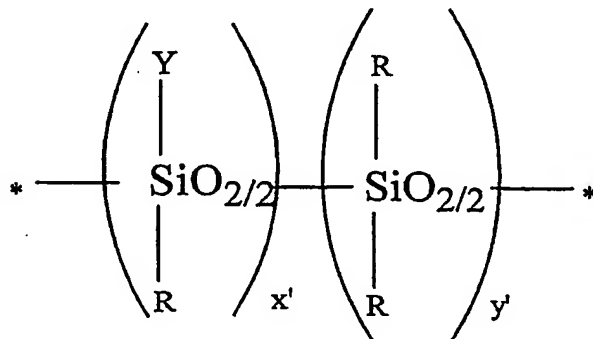
or

(IV.2):



15

(IV.3)



in which:

- Y and R are as defined above,
- a and b = 0 to 2,
- 5 - $0 \leq x \leq 200$ and preferably $0 \leq x \leq 50$,
- $0 \leq y \leq 200$ and preferably $0 \leq y \leq 50$,
- with the condition that if $x + y = 0$, then a and/or b $\neq 0$,
- $1 \leq x' \leq 10$ and preferably $1 \leq x' \leq 8$,
- 10 - $0 \leq y' \leq 10$ and preferably $0 \leq y' \leq 3$,
- $3 \leq x' + y' \leq 10$ and preferably $x' + y' = 3, 4$ or 5 .

6. The process as claimed in any one of claims 1 to 5, characterized in that the catalyst is
 15 triflic acid (TFOH) of formula (I) (i) with $m = 1$ and/or the trifluoromethanesulfonamide acid (TFSI) of formula (I) (iii) with $m = 1$.

7. The process as claimed in any one of claims 1 to 6, characterized in that the concentration
 20 of acid catalyst (I) is between 1 ppm and 2% by weight relative to the starting resin and in that the catalyst (I)/inert support (preferably carbon black) mass ratio is between 0.1 and 10, and is preferably of the order of 1.

25 8. The process as claimed in any one of claims 1 to 7, characterized in that it comprises the following essential steps:

- 1- combining the starting POS resin, the POSf bearing functional units, the acid catalyst (I) and the nonbasic inert filler, preferably based on carbon black, in an organic solvent;
- 5 2- reacting preferably at a temperature θ r greater than or equal to room temperature and less than or equal to the boiling point of the solvent, and even more preferably between 50°C and 100°C;
- 10 3- optionally quenching the reaction by adding an agent for neutralizing the acid catalyst (I);
- 4- removing the inert filler (advantageously the carbon black) from the reaction medium,
- 15 preferably by filtration.

9. The process as claimed in claim 8, characterized in that the organic solvent, preferably xylene or toluene, is provided in the reaction medium by means of a solution of starting POS resin in said
20 solvent, and in that the nonbasic inert filler, preferably the carbon black, is in the form of powder dispersed in the POSf bearing functional units.

10. The process as claimed in any one of claims 1 to 9, characterized in that $Y = H$ or alkenyl
25 in the functional units M' and/or D' and/or T' of the POSf, and in that, after the redistribution, other functionalization radicals Y_1 bearing at least one

unsaturation (preferably ethylenic) or at least one Si-H unit are grafted onto the $\equiv\text{Si-H}$ or $\equiv\text{Si-alkenyl}$ units, respectively, of the redistributed resin.

11. The process as claimed in any one of
5 claims 1 to 10, characterized in that the redistributed and functionalized resin obtained is subjected to at least one other redistribution/functionalization, using POSfs bearing functional units.

12. A catalytic system that is useful for
10 preparing functionalized polyorganosiloxane (POS) resins comprising units M: $(\text{R}_3\text{SiO}_{1/2})$, Q: $(\text{SiO}_{4/2})$ and M': $(\text{Y}_a\text{R}_{3-a}\text{SiO}_{1/2})$ and optionally D: $(\text{R}_2\text{SiO}_{2/2})$ and/or D': $(\text{RYSiO}_{2/2})$ and/or T: $(\text{RSiO}_{3/2})$ and/or T': $(\text{YSiO}_{3/2})$ with, in these units:

- 15 - the radicals R being identical or different and representing a $\text{C}_1\text{-C}_{10}$ alkyl or a $\text{C}_8\text{-C}_{12}$ aryl;
- the radicals Y being identical or different and representing a functional group Y,
- 20 preferably chosen from the group comprising:
- hydrogen
 - an alkenyl
 - an alkynyl
 - an aryl (preferably a phenyl)

25 • an (alkyl)epoxy

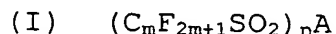
 - an ether or a polyether
 - a carboxylic acid

- an amide
- an amine
- a halide
- an alcohol
- 5 • a thiol or any other sulfur derivative

by redistribution of POS resins using POSs bearing functional units M' and/or D' and/or T' as defined above, characterized in that it comprises:

-A- at least one catalyst of formula (I) below:

10



in which:

- Δ m is an integer greater than or equal to 1;
- 15 Δ n is an integer equal to 1 or 2 and A represents OH, NH₂ or NH with:
- (i) n = 1 and A = OH
- (ii) n = 1 and A = NH₂ or NHR with R being a radical of SO₂-Z type with Z being a
- 20 group other than C_mF_{2m+1}
- (iii) n = 2 and A = NH;

-B- and at least one nonbasic inert filler preferably chosen from the group of products comprising: carbon black, diatomaceous earth, an acidic or

25 neutral oxide (preferably selected from the group comprising: Al₂O₃, Na₂O, TiO₂, MgO, silica and zeolite, and mixtures thereof), and mixtures

thereof.